Group B *Streptococcus*

Section 1: ABOUT THE DISEASE

A. Etiologic Agent

Group B streptococcal (GBS) disease is caused by the bacterium *Streptococcus agalactiae.* There are nine serologically distinct serotypes of *S. agalactiae*.

B. Clinical Description

GBS is a major cause of perinatal bacterial infections in both pregnant women and infants. In addition, adults with underlying medical conditions including diabetes mellitus, chronic renal disease, chronic liver disease, malignancy, and other immunocompromising conditions, as well as those over the age of 65, are more susceptible to systemic GBS infections.

Invasive GBS disease in newborns is characterized by two distinct presentations, depending on the infant's age at onset.

Early Onset Disease	Early onset disease occurs 1–6 days following delivery, most frequently within the first 24 hours of life. The most common signs of early onset systemic infection are respiratory distress, apnea, and shock. With early onset disease, invasive GBS infection typically manifests as sepsis, pneumonia, and occasionally, meningitis.
Late Onset Disease	Late onset disease can occur from 1 week to several months (typically 3–4 weeks) following delivery. With late onset disease, invasive GBS infection usually manifests as sepsis or meningitis.

In pregnant women, GBS can cause urinary tract infections, womb infections (endometritis and chorioamnionitis), bacteremia, and stillbirth. Among men and non-pregnant women, the most common diseases caused by GBS include sepsis, pneumonia, endocarditis, and cellulitis.

The case-fatality rate for invasive GBS is typically 5–8%, but it is higher in pre-term infants.

C. Vectors and Reservoirs

Humans are the only known host for GBS.

D. Modes of Transmission

Transmission from mother to infant occurs just before or during delivery. After delivery, infants are occasionally infected via person-to-person transmission in the nursery. In adults, GBS can be acquired through person-to-person transmission from healthy carriers (colonized but asymptomatic) in the community.

E. Incubation Period

The incubation period for early onset GBS disease is <7 days. The incubation period for late onset GBS disease in infants and in adults is unknown.

F. Period of Communicability or Infectious Period

The period of communicability for GBS is unknown, but it presumably lasts for the duration of colonization or disease.

G. Epidemiology

In adults, colonization is common in the genitourinary and gastrointestinal tracts, and occasionally, the pharynx. Approximately 15–40% of pregnant women are GBS carriers (colonization can be constant or intermittent). Prior to the current recommendations for maternal peripartum (around the time of delivery or membrane rupture) antimicrobial prophylaxis for prevention of early onset GBS disease in neonates, the incidence of early onset GBS disease in newborns was 1–4 cases per 1000 live births. Early onset disease accounted for approximately 75% of infant GBS cases and occurred in approximately one infant per 100–200 colonized women. Due to the widespread use of maternal intrapartum antimicrobial prophylaxis, the incidence rate of early onset GBS disease has decreased about 70% to approximately 0.5 cases per 1000 live births.

The most recent guidelines (2002) for intrapartum screening and antimicrobial prophylaxis are available on the Centers for Disease Control and Prevention (CDC) website at www.cdc.gov/mmwr/preview/mmwrhtml/rr5111a1.htm.

H. Bioterrorist Potential

This pathogen is not considered to be of risk for use in bioterrorism.

Section 2:
REPORTING CRITERIA AND LABORATORY TESTING

A. What to Report to the Massachusetts Department of Public Health (MDPH)

Report any case of isolation of GBS (*S. agalactiae*) by culture from a normally sterile site (e.g., blood or cerebrospinal fluid [CSF] and joint or pleural fluid).

Note: See Section 3C for information on how to report a case.

B. Laboratory Testing Services Available

The MDPH State Laboratory Institute (SLI), Reference Laboratory will test specimens for the presence of GBS when specimens are submitted as part of an epidemiologic investigation conducted by the MDPH. In some outbreak circumstances, isolates may be sent to the CDC for typing.

For more information on submitting specimens, contact the SLI Reference Laboratory at (617) 983-6607.

Section 3:

REPORTING RESPONSIBILITIES AND CASE INVESTIGATION

A. Purpose of Surveillance and Reporting

- To provide information about the disease, its transmission, and methods of prevention.
- To investigate isolates in an effort to identify resistance patterns.

B. Laboratory and Health Care Provider Reporting Requirements

GBS is reportable to the local board of health (LBOH). The MDPH requests that health care providers immediately report to the LBOH in the community where the case is diagnosed, all confirmed or suspect cases of GBS, as defined by the reporting criteria in Section 2A.

Laboratories performing examinations on any specimens derived from Massachusetts residents that yield evidence of GBS infection shall report such evidence of infection directly to the MDPH within 24 hours.

C. Local Board of Health (LBOH) Reporting and Follow-up Responsibilities

Reporting Requirements

MDPH regulations (*105 CMR 300.000*) stipulate that GBS is reportable to the LBOH and that each LBOH must report any case of GBS infection or suspect case of GBS infection, as defined by the reporting criteria in Section 2A. Cases should be reported to the MDPH Bureau of Communicable Disease Control, Office of Integrated Surveillance and Informatics Services (ISIS) using an official MDPH *Generic Confidential Case Report Form* (found at the end of this chapter). Refer to the *Local Board of Health Timeline* at the end of this manual's *Introduction* section for information on prioritization and timeliness requirements of reporting and case investigation.

Case Investigation

1. It is requested that the LBOH complete a MDPH *Generic Confidential Case Report Form* (found at the end of this chapter) by interviewing the case and others who may be able to provide pertinent information. Much of the information required on the form can be obtained from the health care provider or from the medical record.
2. Use the following guidelines to assist in completing the form:
   a. Accurately record the demographic information.
   b. Indicate invasive GBS infection as the disease being reported.
   c. Accurately record clinical information, including date of symptom onset, whether the case was hospitalized (and associated hospital information and dates), and other medical information.
   d. Indicate the type of specimen from which GBS was isolated/identified (e.g., blood, CSF).
   e. Note the date of the first positive culture.
   f. If you have made several attempts to obtain case information but have been unsuccessful (e.g., the case or health care provider does not return your calls or respond to a letter, or the case refuses to divulge information or is too ill to be interviewed), please fill out the form with as much information as you have gathered. Please note on the form the reason(s) why it could not be filled out completely.

3. After completing the form, attach laboratory report(s) and fax or mail (in an envelope marked "Confidential") to ISIS. The confidential fax number is (617) 983-6813. Call ISIS at (617) 983-6801 to confirm receipt of your fax. The mailing address is:

MDPH, Office of Integrated Surveillance and Informatics Services (ISIS)
305 South Street, 5th Floor
Jamaica Plain, MA 02130
Fax: (617) 983-6813

4. Institution of disease control measures is an integral part of case investigation. It is the responsibility of the LBOH to understand, and if necessary, institute the control guidelines listed in Section 4.

Section 4:
CONTROLLING FURTHER SPREAD

A. Isolation and Quarantine Requirements *(105 CMR 300.200)*

None.

B. Protection of Contacts of a Case

None.

C. Managing Special Situations

Reported Incidence Is Higher Than Usual/Outbreak Suspected

If the number of reported cases of GBS infection in your city/town is higher than usual or if you suspect an outbreak in a hospital or long-term care facility, please contact the MDPH Division of Epidemiology and Immunization at (617) 983-6800 or (888) 658-2850 as soon as possible. This situation may warrant an investigation of clustered cases to determine a course of action to prevent further cases. The Division can also perform surveillance for cases across town lines, which would otherwise be difficult to identify at the local level.

D. Preventive Measures

Current recommendations for the prevention of perinatal GBS disease include screening all pregnant women at 35–37 weeks of gestation by vaginal-rectal culture, and providing those colonized with GBS with antimicrobial prophylaxis at the time of labor or of membrane rupture. Women whose culture results are unknown at the time of delivery should be provided antimicrobial prophylaxis if any of the following risk factors are present: delivery at <37 weeks of gestation, maternal fever of >38.0°C (>100.4°F), or duration of membrane rupture of 18 hours or longer.

ADDITIONAL INFORMATION

There is no formal CDC surveillance case definition for invasive GBS disease. To report to the MDPH, always use the criteria outlined in Section 2A.

REFERENCES

American Academy of Pediatrics. [Group B Streptococcal Infections.] In: Pickering L.K., ed. *Red Book: 2003 Report of the Committee on Infectious Diseases, 26th Edition.* Elk Grove Village, IL, American Academy of Pediatrics; 2003: 584–591.

Centers for Disease Control and Prevention. Prevention of Perinatal Group B Streptococcal Disease Revised Guidelines from CDC. *MMWR.* August 16, 2002; 51(RR-11): 1–22.

"Group B Strep Disease." Centers for Disease Control and Prevention. November 30, 2005. <www.cdc.gov/groupbstrep>.

Heymann, D., ed. *Control of Communicable Diseases Manual, 18th Edition*. Washington, DC, American Public Health Association, 2004.

MDPH. *Regulation 105 CMR 300.000: Reportable Diseases, Surveillance, and Isolation and Quarantine Requirements*. MDPH, Promulgated November 4, 2005.

FORMS & WORKSHEETS

Group B Streptococcus

Group B *Streptococcus*

LBOH Action Steps

This form does not need to be submitted to the MDPH with the case report form. It is for LBOH use and is meant as a quick-reference guide to group B streptococcus (GBS) case investigation activities.

LBOH staff should follow these steps when GBS is suspected or confirmed in the community. For more detailed information, including disease epidemiology, reporting, case investigation and follow-up, refer to the preceding chapter.

- ❑ Obtain laboratory confirmation. (Isolation of GBS from a normally sterile site [e.g., blood or cerebrospinal fluid, joint or pleural fluid]).
- ❑ Fill out the case report form (attach laboratory results).
- ❑ Send the completed case report form (with laboratory results) to the MDPH Bureau of Communicable Disease Control, Office of Integrated Surveillance and Informatics Services (ISIS).